UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/505,429	02/16/2000	Takao Toi	Q57908	7134

7590   05/12/2004

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EXAMINER
LAROSE, COLIN M

ART UNIT	PAPER NUMBER
2623	

DATE MAILED: 05/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
-. If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>03 March 2004</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
   closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-22</u> is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-22</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a)☒ All   b)☐ Some * c)☐ None of:

   1.☒ Certified copies of the priority documents have been received.

   2.☐ Certified copies of the priority documents have been received in Application No. _____.

   3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
      application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
   Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____ .
5)☐ Notice of Informal Patent Application (PTO-152)
6)☐ Other: _____.

DETAILED ACTION

Arguments and Amendments

1.   Applicants' amendments and/or arguments filed 3 March 2004, have been entered and made of record.

Response to Amendments and Arguments

2.   Regarding claims 1 and 11, Applicant argues, "Kolchinsky does not disclose that the arithmetic unit 26 performs processing in the time sequence ... required by the claim" (page 9, paper 13).

Examiner agrees with this assertion. However, Baxter teaches performing the control and image processing during non-active and active intervals, as noted in previous Office actions. Kolchinsky is merely relied upon for performing the operations via an FPGA circuit rather than dedicated hardware.

3.   Claim 21 differs from claim 1 primarily in that the "control processing" is further refined as control "pre-processing" or "post-processing." Examiner does not consider this feature to distinguish the claim from the combination of Baxter and Kolchinsky. The control processes disclosed by both Baxter are both pre-processes (zooming, panning/tilting, focusing) and post-processes (automatic gain control). Column 7, lines 48-59.

Claim Rejections - 35 USC § 103

4.   The text of those sections of Title 35, U.S. Code not included in this action can be found

in a prior Office action.

5.   Claims 1-4, 7-10, 11-14, and 17-22 are rejected under 35 U.S.C. 103(a) as being

unpatentable over U.S. Patent 5,486,853 by Baxter et al. ("Baxter") and U.S. Patent 5,301,344 by

Kolchinsky.

        Regarding claims 1, 11 and 21, Baxter discloses an image processing system (figures 8

and 9), an image processing method of the system comprising:

        executing digital image processing of interval of active pixel by processor 66 (figure 8) to

perform various functions on pixel data (column 7, lines 18-31: automatic gain control,

luminance derivation, etc.);

        executing digital control pre- or post-processing according to commands issued during an

interval of non-active pixel (i.e. during blanking periods); [Column 7, lines 48-55: control

commands are received by processor 70 during blanking period and executed accordingly.]

        executing digital image processing again (each field of an image constitutes a different

active/non-active region, so digital image processing is repeated for every field in order to

process an entire image).

        Baxter is silent to utilizing an FPGA for executing said image and control processing

wherein first and second internal logic descriptions, corresponding to each processing, are

written to the FPGA. Instead, Baxter teaches utilizing dedicated processors 66 and 70 for

executing each type processing.

Kolchinsky discloses a reconfigurable image processing system (figure 2) that is

implemented by FPGAs (22 and 26, figure 2), wherein arithmetic unit 26 is operative to process

image data. Kolchinsky teaches that, conventionally, separate image processing operations

require separate hardware (column 1, lines 23-24). Baxter, as noted above, requires separate

processors (66, figure 8, and 70, figure 9) for image processing and control processing.

Kolchinsky's system uses reconfigurable gate arrays to perform a variety of operations,

so that processing algorithms "can be changed easily and quickly without hardware replacement"

(column 2, lines 1-2). That is, the image processing functions of multiple dedicated processors

such as those taught by Baxter are be performed by a single reconfigurable FPGA (arithmetic

unit 26, figure 2) disclosed by Kolchinsky.

With reference to figure 3, first, the command corresponding to the operation to be

executed is read from the command file at step 50. Then, the code corresponding to the operation

is identified and placed into a register at step 52. Then, the command is executed at step 58 on

the condition that proper reconfiguration of internal logic has occurred.

Kolchinsky teaches (figure 4) that both image processing (e.g. image compression, color

processing) and control processing (e.g. zooming/panning) are executed by the arithmetic unit 26

(figure 2).

It would have been obvious to one of ordinary skill in the art at the time of the invention

to replace Baxter's separate processors 66 and 70 by Kolchinsky's reconfigurable FPGAs to

achieve the claimed invention since Kolchinksy provides a much simpler and more hardware-

efficient system for effecting image and control processing. As explained above, Kolchinsky

discloses all operations necessary to perform said digital image processing and said digital

control processing are performed in a single field programmable gate array -- arithmetic unit 26.

Regarding claims 2 and 12, Baxter teaches there is provided an image pick-up element

(CCD 22, figure 9), the system executing color signal processing during active pixel interval and

control processing during non-active interval, as addressed above for claim 1.

Regarding claims 3 and 13, Baxter teaches interval of non-active pixel is a VBI (column

7, lines 48-51).

Regarding claims 4, 7, 14, and 17, Baxter does not expressly disclose utilizing the HBI

and optical black pixel interval as non-active regions, however, effecting control processing

during the HBI and optical black pixel intervals was well-known by those skilled in the art and

was a common practice at the time the invention was made.

Regarding claims 8-10 and 18-20 Baxter (column 7, lines 18-31) and Kolchinsky (figure

4) disclose performing white balance, AF, and lightness control processing.

Regarding claim 22, Baxter's image processing and control pre- or post-processing occur

in one frame (e.g. control signals for AGC are transmitted during the vertical blanking period for

performing automatic gain control of the active region of the frame).

6.   Claims 5, 6, 15, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Baxter and Kolchinsky, and further in view of U.S. Patent 5,754,227 by Fukuoka.

Regarding claims 5, 6, 15, and 16, Baxter (column 7, lines 40-43) and Kolchinsky (figure 4) teach executing compression but do not expressly disclose executing control processing, such as code quantity control, in relation to the image compression in the non-active interval.

Fukuoka discloses a camera interface similar to that of Baxter wherein control commands are issued during the non-active interval (column 8, lines 40-43). Fukuoka also teaches performing compression on the active part of the image and teaches that control commands sent during the non-active interval comprise compression parameters, such as a scale factor, or code quantity (column 10, lines 7-19).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Baxter and Kolchinsky by Fukuoka to achieve the claimed invention since the ability to adjust the compression ratios and scale factors, as taught by Fukuoka, provides control over the compression operations.

Conclusion

7.   Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37
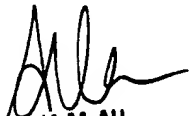
CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Colin M. LaRose whose telephone number is (703) 306-3489. The examiner can normally be reached Monday through Thursday from 8:00 to 5:30. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au, can be reached on (703) 308-6604. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the TC 2600 Customer Service Office whose telephone number is (703) 306-0377.

AMELIA M. AU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

CML
Group Art Unit 2623
4 May 2004